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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,808	08/29/2003	Mitsuo Takeda	36856.1122	2488

7590 10/19/2004

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EXAMINER	
SUMMONS, BARBARA	

ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/652,808	TAKEDA, MITSUO	
	Examiner	Art Unit	
	Barbara Summons	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/29/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-10, 12 and 13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Each of claims 1, 12 and 13 recite that a "grounded electrode pattern" is provided "so as to surround" at least one or both of the input/output electrode pads. This limitation is unclear because "surround" means to "enclose on all sides" (Merriam Webster's Collegiate Dictionary Tenth Edition), but Applicant's ground electrode pattern only "surrounds" the input/output pad on two sides (see e.g. Fig. 2). Furthermore, Applicant's special definition (see page 8, lines 24-28) does not clear up the matter because it states that "the region where the electrode pad is provided is separated from other regions" which is clearly not shown in the figures since the electrode pad 213a in Fig. 2, for example, is in no way "separated from" the regions where resonators 212a and 211b are located. Clarification is required.

For purposes of any art rejections that may follow, a ground electrode pattern that "surrounds" the input/output pad on two sides as shown in the figures, will be considered to anticipate the claims.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 and 6-10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Onishi et al. JP 7-154201 (cited by Applicant)[see the machine translation attached to the Office action].

Regarding claims 1, 2, 6 and 7, Fig. 1 of Onishi et al. discloses a surface acoustic wave (SAW) filter comprising: a piezoelectric substrate 1 of 36 degree lithium tantalate (see the abstract, lines 4-5) having an input pad 4 and an output pad 5; a plurality of series resonators 2 (i.e. the ones with the shorter interdigital electrode overlaps) and parallel resonators 3 arranged in cascaded T-shaped sections (abstract, lines 5-6) to form a ladder configuration; and a grounded electrode pattern 9 provided on the piezoelectric substrate so that it surrounds both the input/output pads 4 and 5 on two sides and "the lines for connecting resonators" (see Applicant's special definition on page 8, lines 24-28) being signal lines 7 and 8, as far as the claim can be understood.

Regarding claim 3, a portion of the grounded electrode pattern 9 is disposed between the input/output pads 4 and 5, since a line drawn between the two pads will intersect grounded pattern 9. Regarding claim 4, grounded pattern 9 is arranged along an edge of the substrate at the left edge above pad 5 in Fig. 1 and also at the right edge below pad 4 in the figure. Regarding claim 8, the ground pattern 9 is connected to a grounded electrode pad 6 on the piezoelectric substrate via bond wires and the

package ground (see e.g. section [0012] of the attached translation and the abstract). That is, the grounded pad 6 is "on the piezoelectric substrate", and if Applicant intends the actual connection to be located on the piezoelectric substrate, clearer wording is required. Regarding claim 9, the filter "includes" (i.e. open language not excluding additional resonators) three series resonators 2 and two parallel resonators 3. Regarding claim 10, see sections [0002] and [0012] of the attached translation.

5. Claims 1, 2, 4, 6, 8-13, 16 and 18-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by Yamagata et al. JP 2000-196400.

Regarding claims 1, 2, 6, 9, 12, 13, 16 and 19, Fig. 2 of Yamagata et al. discloses a SAW ladder filter with cascaded T-shaped sections forming a ladder configuration including three series and two parallel resonators on a piezoelectric substrate with input/output electrode pads 3a, and a grounded electrode pattern 3b provided on the piezoelectric substrate to surround, on two sides, both the input/output pads 3a and the resonator connections. Regarding claims 11 and 4, the grounded pattern 3b is also provided between the input/output pads 3a and the edge of the piezoelectric substrate and is arranged along the entire edge of the substrate. Regarding claims 8 and 18, the grounded pattern 3b is connected to a grounded electrode pad 3d on the substrate. Regarding claims 10 and 20, see sections [0002] and [0020] of the translation provided with the reference.

6. Claims 1, 3-12 and 14-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by Yuda et al. EP 1 030 448 A1.

Fig. 15 of Yuda et al. discloses a SAW ladder filter on a piezoelectric substrate of 36 degree lithium tantalate (see e.g. page 9, lines 21-22) having input/output pads connected to terminals 22 and 23 and including three serial resonators 24a-24c and two parallel resonators 25a and 25b forming two T-shaped sections cascaded to form a ladder configuration with an additional parallel resonator 25c; and a grounded electrode pattern that is not numbered but covers nearly all of the open area on the piezoelectric substrate, is provided so as to surround the input pad connected to terminal 22 on two sides (left and right with the page 24 vertical) and to lie between the input pad and the left and right edges of the substrate. Regarding claims 5 and 15 the series resonators are linearly arrayed. Regarding claims 8 and 18 the grounded patterns are integral with and connected to ground pads (i.e. at least where the ground wires are shown at the three corners of the substrate) on the piezoelectric substrate. Regarding claims 10 and 20, see Fig. 7 for example.

Regarding claims 3 and 14, the embodiment of Fig. 1, for example, shows the SAW filter with the ground electrode pattern provided between the input pad (where terminal 2 is connected) and an edge of the piezoelectric substrate and the input pad surrounded on two sides, and a portion of the grounded electrode pattern is disposed between the input/output pads since a line drawn between the two will intersect the grounded electrode pattern.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ito JP 2000-341080 discloses a SAW ladder filter (see Fig. 1) having the series resonators linearly arrayed and a ground electrode 8 disposed between the input/output pads 9 and 10 and an upper edge of the piezoelectric substrate.

Yasuda JP 9-199986 discloses that having the series SAW resonators in a SAW ladder filter linearly arrayed would have been a known layout of the ladder filter resonators and the principles of the ground electrode patterns to increase attenuation outside of the filter pass band taught by the applied prior art could have been obviously applied to this ladder filter with linearly arrayed series resonators.

Satoh et al. U.S. 6,310,422 discloses a SAW ladder filter wherein nearly the entire unoccupied surface of the piezoelectric substrate is filled with a ground electrode pattern.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bs
October 14, 2004
(1 Attachment)

Barbara Summons

BARBARA SUMMONS
PRIMARY EXAMINER